Annual

WATER QUALITY REPORT

Reporting Year 2011

Presented By

City of Loma Linda

PWS ID#: 3610013

Meeting the Challenge

We are once again proud to present our annual water quality report covering all testing performed between January 1 and December 31, 2011. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please share with us your thoughts or concerns about the information in this report. After all, well-informed customers are our best allies.

Water Conservation

You can play a role in conserving water and save yourself money in the process by becoming conscious of the amount of water your household is using and by looking for ways to use less whenever you can. It is not hard to conserve water. Here are a few tips:

- Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So get a run for your money and load it to capacity.
- Turn off the tap when brushing your teeth.
- Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.
- Check your toilets for leaks by putting a few drops of food coloring in the tank. Watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from an invisible toilet leak. Fix it and you save more than 30,000 gallons a year.
- Use your water meter to detect hidden leaks. Simply turn off all taps and water-using appliances. Then check the meter after 15 minutes. If it moved, you have a leak.
- In an effort to replace old meters, The Water Department has been aggressively replacing water meters. This is being done to increase water conservation and to remove old meters which may contain lead. We will continue to do so in 2012. If your meter is scheduled to be replaced, you will receive notification either by mail or by a City employee.

Where Does My Water Come From?

The City of Loma Linda's customers are fortunate because we enjoy an abundant groundwater supply. We operate eight wells: Richardson Wells 1, 3, 4, 5, and 6 and Mt. View Wells 3, 5, and 6. All of the City's wells are located in the Bunker Hill Basin, a vast, natural underground water storage area referred to as an aquifer. The Bunker Hill Basin stretches from the San Bernardino Mountain Range to the south hills of Loma Linda. The water that replenishes the Bunker Hill Basin comes from annual rainfall and snowmelt from the San Bernardino Mountains. The wells are located in the north area of the City of Loma Linda.

Loma Linda also uses a supplemental supply of water as needed from the City of San Bernardino Municipal Water Department. Both the City of Loma Linda and the City of San Bernardino Municipal Water Department fall under the same regulations for water set forth by the U.S. Environmental Protection Agency (U.S. EPA) and the State of California Department of Health Services (CDHS).

In June, 2006, an arsenic removal facility was installed to treat water at our Mt. View #3 and Mt. View #5 wells. This was done to maintain compliance in response to the EPA's decision to lower the MCL (maximum contaminant level) for arsenic from 50 ppb to 10 ppb.

In 2011, as part of a joint project with Lockheed Martin, Inc., two treatment facilities were installed to remove Perchlorate and VOCs (Volatile Organic Chemicals) from two new wells that were installed in 2010. This was done in an effort to isolate and remove those contaminants in the aquifer and keep them from migrating further into the Bunker Hill Basin.

How Long Can I Store Drinking Water?

The disinfectant in drinking water will eventually dissipate even in a closed container. If that container housed bacteria before it was filled with the tap water, the bacteria may continue to grow once the disinfectant has dissipated. Some experts believe that water could be stored up to six months before needing to be replaced. Refrigeration will help slow the bacterial growth.

Questions?

For more information about this report, or for any questions relating to your drinking water, please call Russ Handy, Utilities Superintendent, at (909) 799-4420.

Substances That Could Be in Water

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (U.S. EPA) and the State Department of Public Health (Department) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk.

Contaminants that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife;

Inorganic Contaminants, such as salts and metals, that can be naturally occurring or can result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

Pesticides and Herbicides, that may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and which can also come from gas stations, urban stormwater runoff, agricultural applications, and septic systems;

Radioactive Contaminants, that can be naturally occurring or can be the result of oil and gas production and mining activities.

More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Water Main Flushing

Distribution mains (pipes) convey water to homes, businesses, and hydrants in your neighborhood. The water entering distribution mains is of very high quality; however, water quality can deteriorate in areas of the distribution mains over time. Water main flushing is the process of cleaning the interior of water distribution mains by sending a rapid flow of water through the mains.

Flushing maintains water quality in several ways. For example, flushing removes sediments like iron and manganese. Although iron and manganese do not pose health concerns, they can affect the taste, clarity, and color of the water. Additionally, sediments can shield microorganisms from the disinfecting power of chlorine, contributing to the growth of microorganisms within distribution mains. Flushing helps remove stale water and ensures the presence of fresh water with sufficient dissolved oxygen, disinfectant levels, and an acceptable taste and smell.

During flushing operations in your neighborhood, some short-term deterioration of water quality, though uncommon, is possible. You should avoid tap water for household uses at that time. If you do use the tap, allow your cold water to run for a few minutes at full velocity before use and avoid using hot water, to prevent sediment accumulation in your hot water tank.

Please contact us if you have any questions or if you would like more information on our water main flushing schedule.

Lead in Home Plumbing

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. We are responsible for providing high-quality drinking water, but we cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

Source Water Assessment

To find and protect against any potential contamination sources to our water supply, the City of Loma Linda completed a drinking water source assessment for each well. These assessments were completed as follows: Mountain View Well # 3, November 1999; Richardson Well #4, February 2000; Richardson Wells #1 and #3, November 2000; Mt. View Well #5, February 2003;, Richardson Well #6, August 2009;, Mt. View Well #6 and Richardson Well #5, April, 2009.

The drinking water source assessment is the first step in the development of a complete drinking water source protection program. The assessment includes a delineation of the area around a drinking water source through which contaminants might move and reach that drinking water supply. In addition, it includes an inventory of activities that might lead to the release of microbiological or chemical contaminants within the delineated area. This assessment enables us to determine whether the drinking water source might be vulnerable to contamination. All information obtained during the process is provided to California Department of Public Health for review.

A copy of the assessment can be obtained by contacting us during regular business hours.

Important Health Information

Nitrate in drinking water at levels above 45 ppm is a health risk for infants of less than six months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant's blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness of the skin. Nitrate levels above 45 ppm may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with certain specific enzyme deficiencies. If you are caring for an infant, or you are pregnant, you should ask advice from your health care provider.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or http://water.epa.gov/drink/hotline.

Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. The City Council meets the second and fourth Tuesdays of each month beginning at 7:00 p.m. at the City of Loma Linda Council Chamber, 25541 Barton Road, Loma Linda, California.

Fact or Fiction

Tap water is cheaper than soda pop. *(Fact: You can refill an 8 oz. glass of tap water approximately 15,000 times for the same cost as a six-pack of soda pop. And, water has no sugar or caffeine.)*

Methods for the treatment and filtration of drinking water were developed only recently. *(Fiction: Ancient Egyptians treated water by siphoning water out of the top of huge jars after allowing the muddy water from the Nile River to settle. And, Hippocrates, known as the father of medicine, directed people in Greece to boil and strain water before drinking it.)*

A typical shower with a non-low-flow showerhead uses more water than a bath. *(Fiction: A typical shower uses less water than a bath.)*

Water freezes at 32 degrees Fahrenheit. *(Fiction: You can actually chill very pure water past its freezing point (at standard pressure) without it ever becoming solid.)*

The Pacific Ocean is the largest ocean on Earth. *(Fact: The Atlantic Ocean is the second largest and the Indian Ocean is the third largest.)*

A single tree will give off 70 gallons of water per day in evaporation. *(Fact)*

Who uses the most water?

On a global average, most freshwater withdrawals—69 percent—are used for agriculture, while industry accounts for 23 percent and municipal use (drinking water, bathing and cleaning, and watering plants and grass) just 8 percent.

How much water does a person use every day?

The average person in the U.S. uses 80 to 100 gallons of water each day. During medieval times, a person used only 5 gallons per day.

Should I be concerned about what I'm pouring down my drain?

If your home is served by a sewage system, your drain is an entrance to your wastewater disposal system and eventually to a drinking water source. Consider purchasing environmentally friendly home products whenever possible, and never pour hazardous materials (e.g., car engine oil) down the drain. Check with your health department for more information on proper disposal methods.

How long does it take a water supplier to produce one glass of water?

It can take up to 45 minutes to produce a single glass of drinking water.

How much emergency water should I keep?

Typically, 1 gallon per person per day is recommended. For a family of four, that would be 12 gallons for 3 days. Humans can survive without food for 1 month, but can only survive 1 week without water.

Where does a water molecule spend most of its time on Earth?

In a 100-year period, a water molecule spends 98 years in the ocean, 20 months as ice, about 2 weeks in lakes and rivers, and less than a week in the atmosphere.

How many community water systems are there in the U.S.?

About 53,000 public water systems across the United States process 34 billion gallons of water per day for home and commercial use. Eighty-five percent of the population is served by these systems.

Sampling Results

During the past year we have taken thousands of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The tables below show only those contaminants that were detected in the water. The state requires us to monitor for certain substances less often than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	PHG (MCLG) [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Aluminum (ppm)	2011	1	0.6	0.0176	0–0.067	No	Erosion of natural deposits; residue from some surface water treatment processes
Arsenic (ppb)	2011	10	0.004	0.41	0–6.6	No	Erosion of natural deposits; runoff from orchards; glass and electronics production wastes
Barium (ppm)	2011	1	2	0.00862	0–0.042	No	Discharges of oil drilling wastes and from metal refineries; erosion of natural deposits
Chlorine (ppm)	2011	[4.0 (as Cl2)]	[4 (as Cl2)]	0.365	0.28–0.46	No	Drinking water disinfectant added for treatment
Chromium (ppb)	2011	50	(100)	1.32	0–3.7	No	Discharge from steel and pulp mills and chrome plating; erosion of natural deposits
Fluoride (ppm)	2011	2.0	1	0.81	0.64–0.98	No	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Gross Alpha Particle Activity (pCi/L)	2011	15	(0)	3.49	0–9.0	No	Erosion of natural deposits
Nitrate [as nitrate] (ppm)	2011	45	45	24.52	18–31	No	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Nitrate + Nitrite (ppb)	2011	10,000	NA	3,838	260–8,900	No	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Radium 228 (pCi/L)	2011	5	0.019	0.08	0–0.13	No	Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2011	80	NA	0.175	0–2.8	No	By-product of drinking water disinfection
Uranium (pCi/L)	2011	20	0.43	6.98	4.1–9.1	No	Erosion of natural deposits

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	PHG (MCLG)	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2011	1.3	0.3	0.00016	0/30	No	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives

SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	PHG (MCLG)	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Aluminum (ppb)	2011	200	NS	17.6	0–67	No	Erosion of natural deposits; residual from some surface water treatment processes
Chloride (ppm)	2011	500	NS	17.48	6.4–31	No	Runoff/leaching from natural deposits; seawater influence
Foaming Agents [MBAS] (ppb)	2011	500	NS	16	0–50	No	Municipal and industrial waste discharges
Odor–Threshold (Units)	2011	3	NS	1	1–1	No	Naturally occurring organic materials
Specific Conductance (µS/cm)	2011	1,600	NS	434	280–510	No	Substances that form ions when in water; seawater influence
Sulfate (ppm)	2011	500	NS	37.4	19–43	No	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (ppm)	2011	1,000	NS	268	160–320	No	Runoff/leaching from natural deposits
Turbidity (Units)	2011	5	NS	0.23	0.1–0.5	No	Soil runoff
Zinc (ppm)	2011	5.0	NS	0.00198	0–0.0099	No	Runoff/leaching from natural deposits; industrial wastes

OTHER UNREGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH
Bicarbonate (ppm)	2011	158	90–200
Boron (ppb)	2011	24.6	0–68
Calcium (ppm)	2011	13.6	0–65
Carbonate (ppm)	2011	4.4	0–22
Hardness (ppm)	2011	109.8	16–220
Magnesium (ppm)	2011	4.18	0–11
pH (Units)	2011	8.22	7.8–9.1
Potassium (ppm)	2011	1.756	0.78–2.2
Sodium (ppm)	2011	47.8	21–70
Total Alkalinity (ppm)	2011	135	110–170
Vanadium (ppb)	2011	16.58	3.7–51

Definitions

AL (Regulatory Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

µS/cm (microsiemens per centimeter): A unit expressing the amount of electrical conductivity of a solution.

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs (SMCLs) are set to protect the odor, taste, and appearance of drinking water.

MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. EPA.

MRDL (Maximum Residual Disinfectant Level): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NA: Not applicable

NS: No standard

pCi/L (picocuries per liter): A measure of radioactivity.

PDWS (Primary Drinking Water Standard): MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements and water treatment requirements.

PHG (Public Health Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California EPA.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).